



Landscaping in Fire Country:

How to Design a Firewise Yard

Guide



Okanogan

Conservation

District

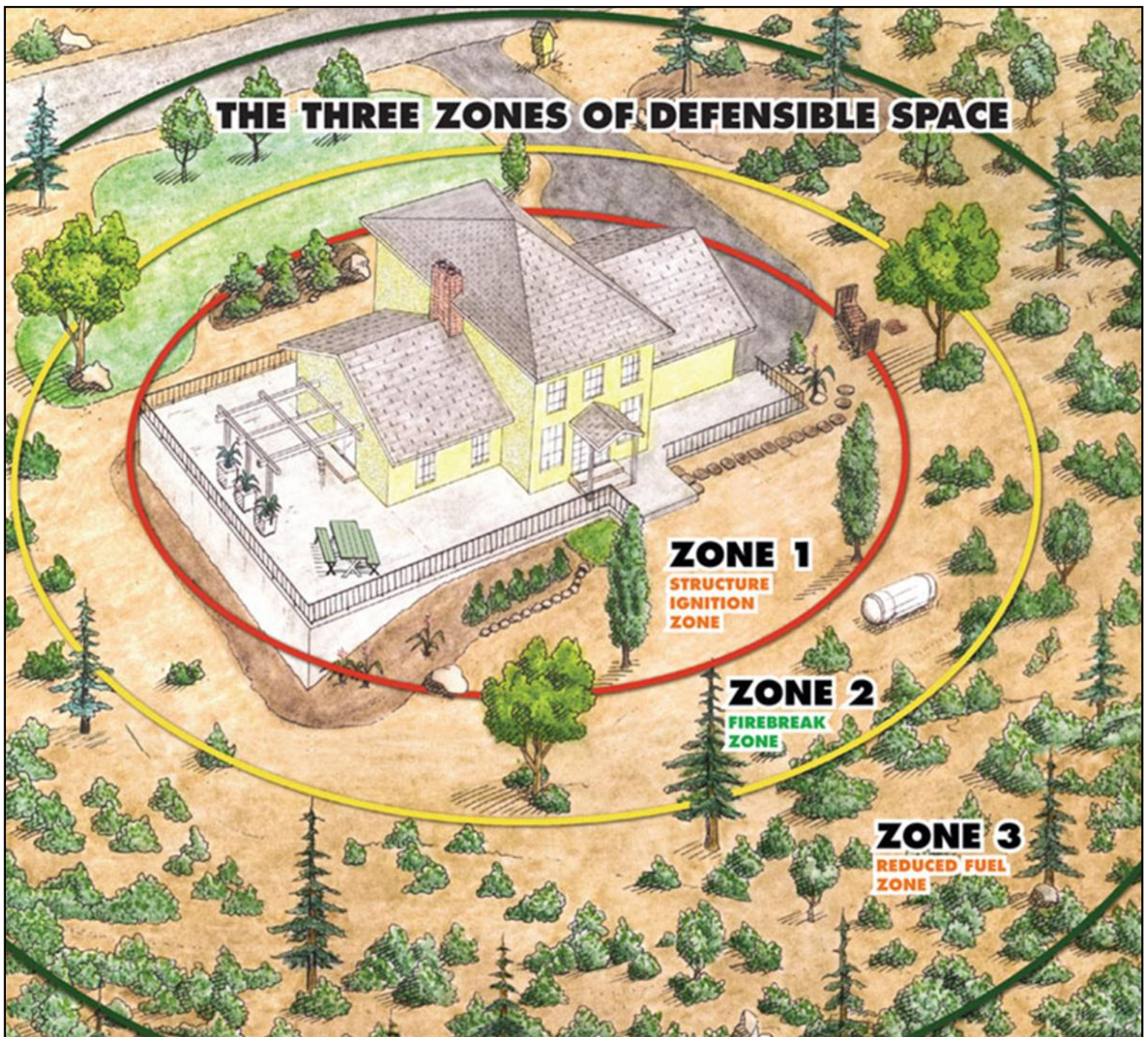


Fire is a natural part of our environment.

As we choose to live in areas where wildfires occur, we must **adapt the way we design, build and live** within these areas to prepare our communities for wildfire.

A fire adapted landowner understand the risks and **takes actions** that minimize harm.

We live in fire country. A Firewise home and landscape can reduce your risk from wildfire.





Embers are the primary cause of home ignitions in wildfire events...even if the fire is not right next to the home.

They present hazards because they can either directly ignite components of vulnerable structures or can ignite nearby vegetation and other combustibles which can subsequently ignite the structure via radiant heating or direct flame contact (Quarles, 2012).

Embers can travel over a mile from the fire.

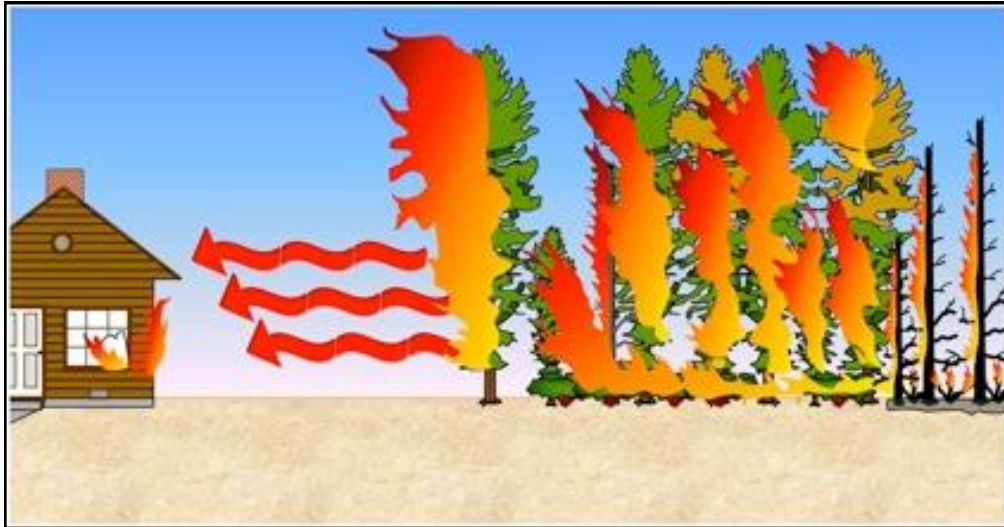


Figure 6: A destroyed home following fire spread from the Angora fire. Note the intact, unburned vegetation surrounding the structure. Murphy et al. notes that this house was ignited by wind-blown firebrands, not by surface fire spread or radiant heating (Murphy et al., 2007).



Radiant heat is the energy that is transferred through the air to other objects when materials burn. If a house receives enough radiant heat for a sufficient time, it will ignite without flames contacting it.

Sometimes radiant heat can break the glass in windows, allowing wind-blown embers to enter the house. In the photo to the left, radiant heat melted the vinyl siding, which exposed the flammable sheathing. As you can see, the sheathing began to scorch and would have ignited if the radiant heat source had persisted longer. Wood siding is the most vulnerable. Fiber cement siding is considered noncombustible.



Large sources of heat, including propane tanks, firewood piles, and significant amounts of vegetation should be no closer than 30 feet when on flat ground. On slopes, the distance should be increased.

The home pictured below has a large amount of very flammable vegetation within 10 feet, which has the potential to create enough radiant heat to ignite the siding.



Example of a low-risk “structure ignition zone”:

Imagine a storm of embers like the photo on the previous page. Embers need to land on something flammable to ignite the home. These homeowners kept flammable materials away from their home with the following choices:

1. Metal roof
2. Fiber-cement siding
3. Non-flammable perimeter (including the door mat)
4. Fire-resistant plant materials (minimal amounts)
5. Green, mowed lawn
6. All areas kept clear of needles, cones, and other debris.

This home survived the Tunk Block Fire in 2015.



Example of a higher risk “structure ignition zone”:

Imagine a storm of embers like the photo on the previous page. Embers need to land on something flammable to ignite the home. These homeowners have a higher risk of home ignition because of the following choices:

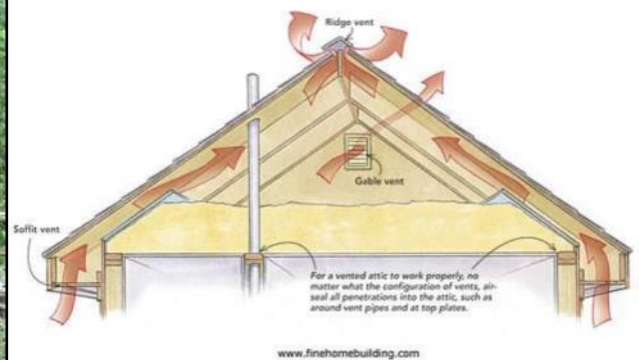
1. Wood (cedar) siding
2. Flammable perimeter (wood chip mulch)
3. Flammable plant materials (and lots of them, under the eaves)
4. Unscreened gable end vents.

What about irrigation? Even though this landscape had drip irrigation, the wood mulch right next to the house was dry and could easily ignite from embers. The owners had no backup power supply, so in the event of a power outage (likely in wildfires), their irrigation system would not work.



Why do vents matter?

Vents are designed to pull air through a structure to prevent mold, etc., but when the air is full of embers, those embers can get into homes and start burning them from the inside out. Vents should be screened with 1/8” metal mesh, or one can buy vents specially designed to resist embers.



Zone 1: The Structure Ignition Zone

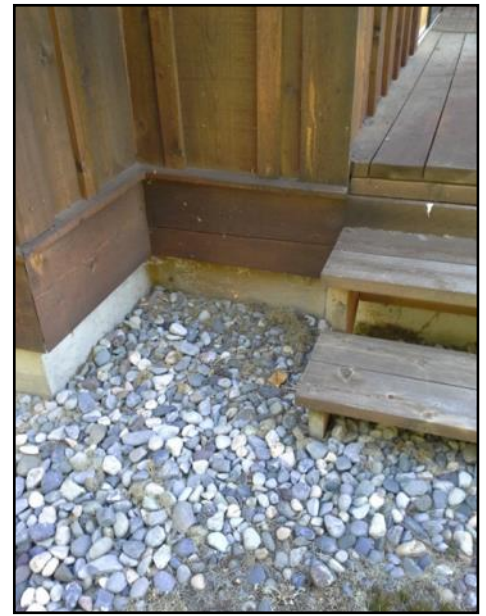
The home and its immediate surroundings, up to a 30-foot radius around the home.

Best Practices in the Structure Ignition Zone

- Non-flammable perimeter 1'-5' wide: at least as wide as eaves.
- No wood chip or bark mulch within 5' of home or other structures.
- Low-flammability plants and accessories.
- Prune limbs 10' from ground (take no more than 50% of canopy at any one time)
- Mow, prune, and water regularly. Remove dead material before it accumulates.
- No firewood, railroad ties or propane tanks. Wood fences can also carry fire.



Non-flammable perimeter



Wood or bark mulch can readily ignite



Characteristics of low-flammability plants

- Little accumulation of dead vegetation
- Open, loose branching
- Not resinous, oily, or waxy.
- Low volume of total vegetation
- High moisture content
- Slow growing

Fire-resistant does not mean fireproof!
Even fire-resistant plants will burn if not well maintained. Be sure to keep all of your landscape plants healthy with appropriate watering, proper pruning, etc.



Native plants are often adapted for fire. Above, R to L: Serviceberry (*Amelanchier alnifolia*), Creeping Oregon Grape (*Mahonia repens*), and Kinnikinnick (*Arctostaphylos uva-ursi*).

HIGH-flammability plants:



Arborvitae (L) and pine (R), along with juniper and other conifers are easily ignitable and burn hot.

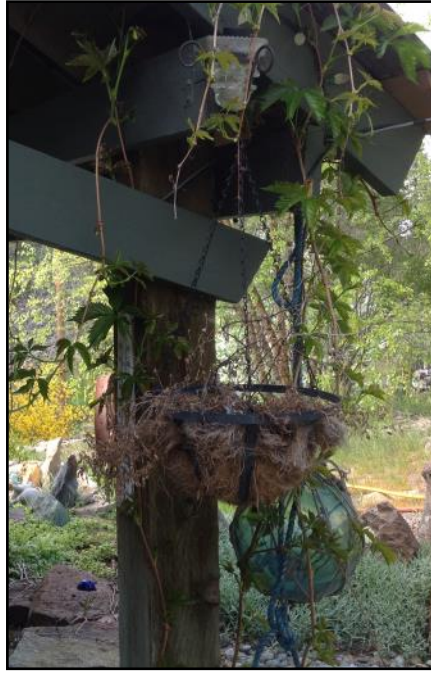
Shrubs like bitterbrush, sagebrush, rosemary, and other fragrant, oily shrubs are also highly flammable.

Ornamental and native bunch grasses that develop large amounts of dead, dry material are also risky choices for the area right around the home, especially the very tall varieties.

Examples of HIGH-flammability accessories:



Coir door mat and dried flower wreath.



Hanging basket with dried-out moss bedding.



Rugs and furniture. Take these inside during high fire danger or when away from the home.

All of these have the potential to catch embers and ignite the structure.

Mow, prune, and water regularly



Well-maintained lawns can be effective firebreaks.



This home survived the Carlton Complex fire of 2014.



Not enough water to keep a green lawn? Mow vegetation as low as possible, and use rock and gravel to create a fire-free perimeter around your home.

Firewood, railroad ties, propane tanks, and wood fences add risk to your landscape



Firewood piles and railroad ties both burn hot and take massive amounts of water to put out once ignited. In one case, railroad ties were observed smoldering one week after the fire passed through a property in California.

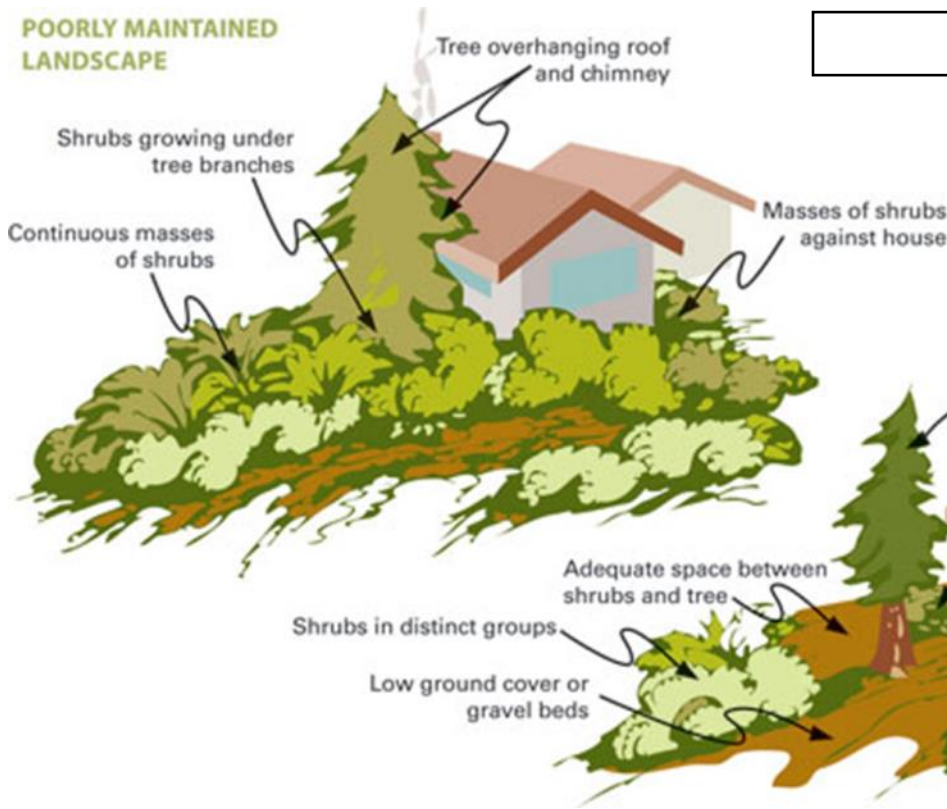


Propane tanks are designed to vent when they get too hot. If they vent when embers or flames are in the air, they can become giant torches. Protect your tank from heat sources, and keep tanks as far from the home as possible, unlike the home above.

Fences act like wicks to move fire from the yard to the house, like the example to the right. If you already have a wood fence, you can replace the sections that attach to the house with metal fencing to reduce the risk.

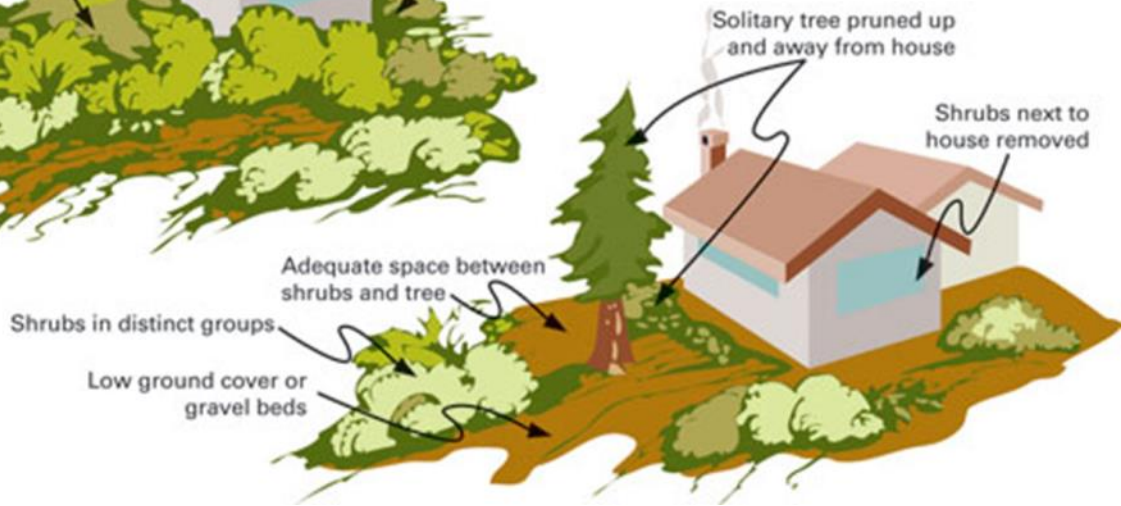


**POORLY MAINTAINED
LANDSCAPE**



Maintenance is key

**WELL MAINTAINED
LANDSCAPE**



Firewise examples from around Okanogan County



Zones 2 & 3: The Defensible Space Zone

The area between 30 and 200 feet from the home.

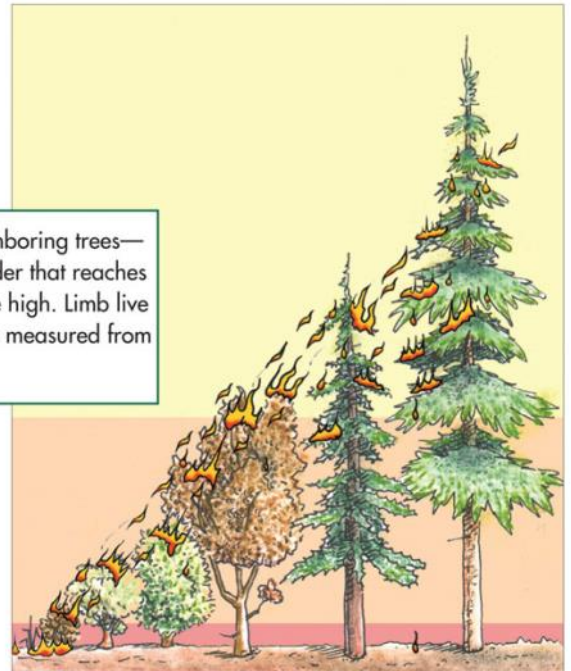


Focus on Fuels



Surface fuels

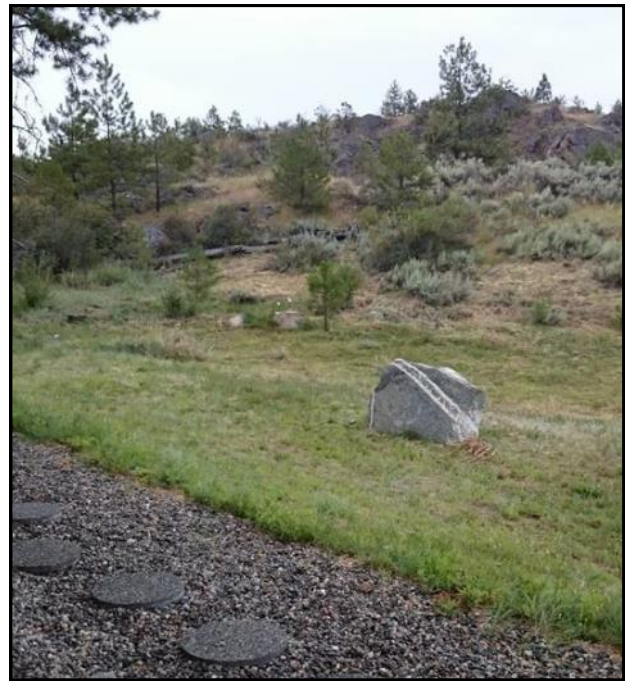
Fire "climbs" neighboring trees—don't give it a ladder that reaches from the low to the high. Limb live trees up 10 feet as measured from the uphill side.



Ladder fuels




General rule of thumb for fire behavior: flame length is typically 3 times the height of the fuel. Keeping fire on the ground helps firefighting efforts; once flames are in the canopies of trees, there isn't much a firefighter can do. Reducing the height and density of fuels usually results in less intense fire behavior and lower burn severity.

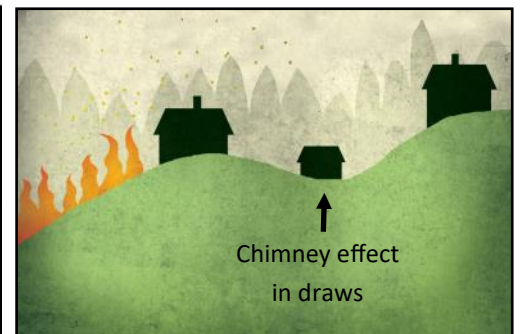
Break up the fuels while keeping habitat features



Breaking up a continuous path of fuel, whether it's trees or shrubs, can reduce the intensity of fire behavior. Complete fuel breaks are an option, but for a more natural look, try the "SLOPPs" method in the area away from the home. Snags, logs, opening, patches, and piles provide cover, nesting, and feeding areas for local wildlife. Leave 10'-20' between individual trees and large shrubs. Treat clumps like one big tree or shrub.

Adjust your plan based on your topography and wind patterns.

VEGETATION TYPE	DEFENSIBLE SPACE RECOMMENDED DISTANCES—STEEPNESS OF SLOPE		
	Flat to Gently Sloping 0 to 20%	Moderately Steep 21% to 40%	Very Steep +40%
 Grass Wildland grasses (such as cheatgrass), weeds, and widely scattered shrubs with grass understory.	30feet	100feet	100feet
 Shrubs Includes shrub dominant areas.	100feet	200feet	200feet
 Trees Includes forested areas. If substantial grass or shrub understory is present, use those values shown above.	30feet	100feet	200feet



Homes on slopes and in draws need additional defensible space because fire moves faster uphill, preheating everything in front of and above it.

If your home is subject to regular winds from certain directions, make those parts of the yard the most Firewise.

For a personalized Firewise plan for your home and yard, schedule a free risk assessment with the Okanogan Conservation District at 509-422-0855 or www.okanogancd.org/residents

Additional Resources for Landscaping in Fire Country

Firewise home risk assessments:

Okanogan Conservation District 509-422-0855 www.okanogancd.org/residents

Forest health consultations and cost-share grants for thinning and forest health:

Department of Natural Resources Landowner Assistance 509-684-7474 www.dnr.wa.gov/sflo

USDA Natural Resources Conservation Service 509-422-2750 www.nrcs.usda.gov

Noxious weeds:

Okanogan County Noxious Weed Control Board 509-422-7165 www.okanogancounty.org/nw/

General gardening questions:

Okanogan County Master Gardeners 509-422-7245 extension.wsu.edu/okanogan/

Wildfire Preparedness:

National Fire Protection Association Firewise USA www.firewise.org

Institute for Business and Home Safety <https://disastersafety.org/wildfire/>

Ready Set Go www.wildlandfirersg.org/

Fire Adapted Communities www.fireadapted.org/

Washington Fire Adapted Communities www.fireadaptedwashington.org/



Cooperative Conservation Since 1940

The Okanogan Conservation District works collaboratively with land managers to care for natural resources in Okanogan County. Services are provided free of charge, in a non-regulatory, voluntary manner. Programs include assistance with soil health, water quality, irrigation efficiency, wildlife habitat, wildfire preparedness, and post-fire recovery. The District also provides conservation education programs for K-12 students and adults. For more information visit www.okanogancd.org.

The Landscaping in Fire Country workshop and guidebook were made possible by funding from the Washington State Fire Adapted Communities Learning Network. The Network provides member communities with resources to increase local capacity and elevate our collective ability to adapt communities' relationships to the complex fire issues we face.

